

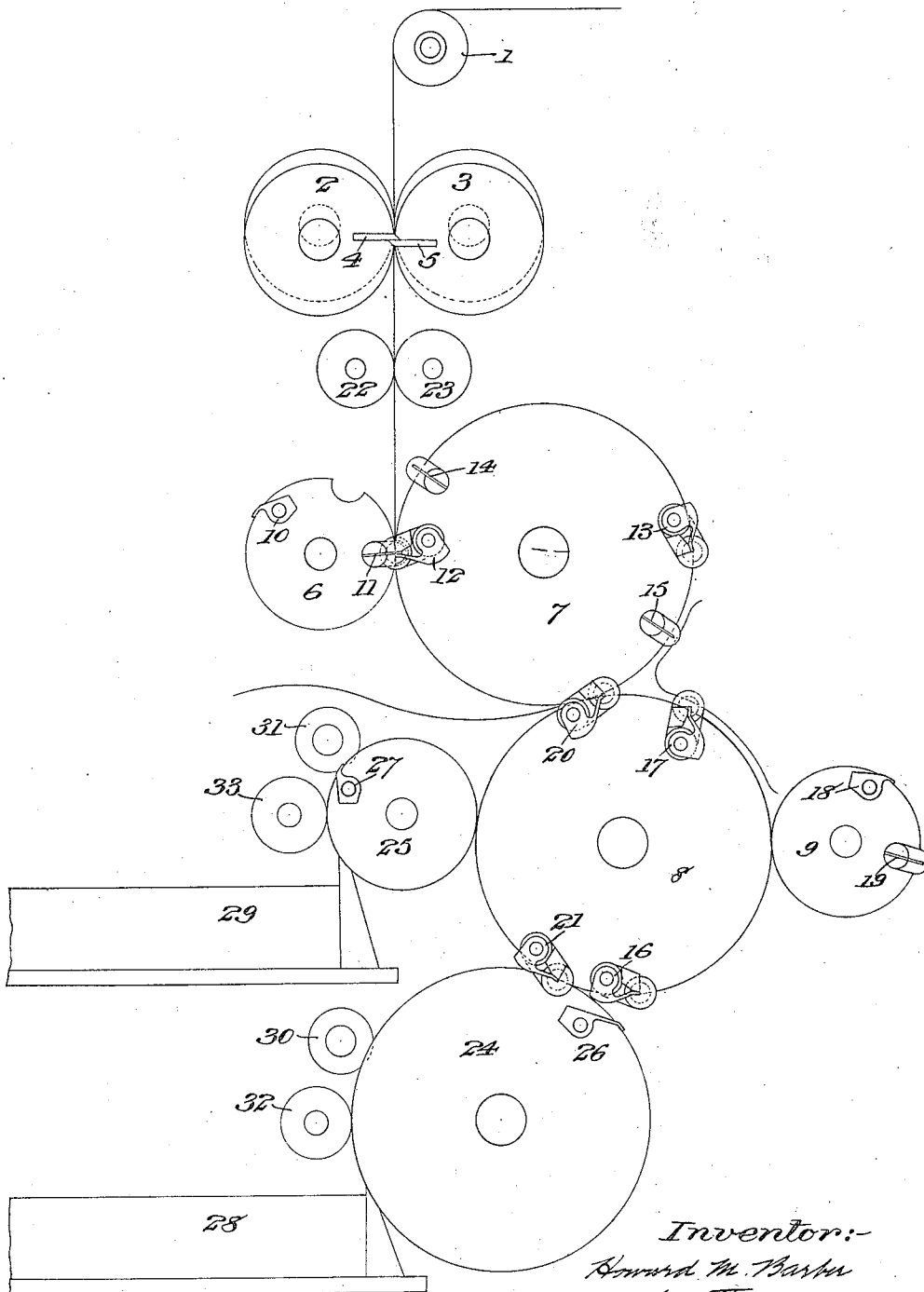
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H. M. BARBER

FOLDING MECHANISM

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Inventor:-
Howard M. Barber
by attorney
Thomson & Ward

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UNITED STATES PATENT OFFICE.

HOWARD M. BARBER, OF STONINGTON, CONNECTICUT, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

FOLDING MECHANISM.

Application filed July 13, 1921. Serial No. 494,387.

To all whom it may concern:

Be it known that I, HOWARD M. BARBER, a citizen of the United States, and resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Folding Mechanism, of which the following is a specification.

The object of my invention is to provide novel means in a sheet folding machine for making three parallel cross folds, said means including two pairs of folding cylinders coacting to make the three parallel cross folds, one of said cylinders being arranged to coact with one of the other cylinders to make the second fold and with another of the cylinders to make the third fold.

A practical embodiment of my invention is represented in the accompanying drawings, in which,

Fig. 1 represents a diagrammatic view of so much of a sheet folding machine as includes my invention.

The web feed roll is denoted by 1 and the pair of coacting rotary cutters by 2 and 3, the knives 4 and 5 of which are arranged to sever sheets of a predetermined length. The mechanism for imparting three parallel cross folds to the sheets includes two pairs of rotary folding cylinders, the first cylinder being denoted by 6; the second cylinder by 7; the third cylinder by 8, and the fourth cylinder by 9. The first cylinder 6 is shown as provided with a set of head grippers 10 and a floating folding blade 11. In the embodiment illustrated, the second cylinder 7 is shown as being provided with two sets of floating folding jaws 12 and 13, arranged to successively coact with the folding blade 11 to impart a first cross fold to successive products. This second cylinder 7 is also shown as provided with two floating folding blades 14 and 15. The third folding cylinder 8 is shown as provided with two sets of floating folding jaws 21 and 17 which are arranged to coact with their respective blades 14 and 15 on the second folding cylinder 7 to impart a second parallel cross fold to successive products. The fourth cylinder 9 is provided with the head grippers 18 and also with a floating folding blade 19. The third folding cylinder 8 is also provided with two sets of floating folding jaws 20 and 16, which are arranged to successively coact with the folding blade 19 on the fourth folding

cylinder 9 to impart the third parallel cross fold to successive products. Coacting friction pulleys 22 and 23 are located between the rotary cutters 2, 3 and the first pair of folding cylinders 6, 7 to feed the sheets in register as they pass from the cutters to the first pair of folding cylinders.

The rotary delivery cylinder 24 is provided with head grippers 26 for coaction with the set of grippers 16 on the third folding cylinder 8 to take one of the thrice folded products therefrom. A second rotary delivery cylinder 25 is provided with head grippers 27 arranged to coact with the grippers 20 on the third folding cylinder 8 to take the next succeeding thrice folded product therefrom. By this arrangement the product may be delivered to two delivery points 28 and 29.

Rotary slitters 30 and 31 are provided for slitting the thrice folded products longitudinally, said slitters being arranged to coact with their respective delivery cylinders 24 and 25.

Friction pulleys 32 and 33 may be provided in position to coact with their respective delivery cylinders 24 and 25, for ensuring the proper delivery of the folded products to the two delivery points 28 and 29.

I have not shown the means for rotating the several cylinders nor the means for operating the floating folding blades and jaws or the means for operating the head grippers as all of these means may be of well known or approved construction, readily understood by persons skilled in this art.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the particular embodiment herein shown and described, but

What I claim is:—

1. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold, the second cylinder and the fourth cylinder coacting with the third cylinder to make the second and third folds on the third cylinder.

2. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the

first cylinder coacting with the second cylinder to make the first fold, the second cylinder coacting with the third cylinder to make the second fold and the fourth cylinder coacting with the third cylinder to make the third fold on the third cylinder.

3. In a sheet folding machine, mechanism operative to make three parallel cross folds including two pairs of rotary folding cylinders, one cylinder of the first pair having a folding blade and the other cylinder having a plurality of sets of jaws to coact therewith and also a plurality of folding blades, one cylinder of the second pair having a folding blade and the other cylinder having a plurality of sets of jaws to coact therewith and also a plurality of sets of jaws to coact with their respective folding blades on the second named cylinder of the first pair.

4. In a sheet folding machine, mechanism operative to make three parallel cross folds including two pairs of rotary folding cylinders, one cylinder of the first pair having a folding blade and the other cylinder having two sets of jaws to coact therewith and also two folding blades, one cylinder of the second pair having a folding blade and the other cylinder having two sets of jaws to coact therewith and also two sets of jaws to coact with their respective folding blades on the second named cylinder of the first pair.

5. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold on the second cylinder, the second cylinder coacting with the third cylinder to make the second fold on the third cylinder and the fourth cylinder coacting with the third cylinder to make the third fold on the third cylinder, and a rotary delivery cylinder coacting with the third cylinder to take the thrice folded product therefrom.

6. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold on the second cylinder, the second cylinder coacting with the third cylinder to make the second fold on the third cylinder, and the fourth cylinder coacting with the third cylinder to make the third fold on the third cylinder, a rotary delivery cylinder coacting with the third cylinder to take the thrice folded product therefrom, and means for slitting the product on the delivery cylinder.

7. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold on the second

cylinder, the second cylinder coacting with the third cylinder to make the second fold on the third cylinder and the fourth cylinder coacting with the third cylinder to make the third fold on the third cylinder, and a plurality of rotary delivery cylinders coacting with the third cylinder to take the thrice folded products therefrom.

8. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold, the second cylinder coacting with the third cylinder to make the second fold and the fourth cylinder coacting with the third cylinder to make the third fold, a plurality of rotary delivery cylinders coacting with the third cylinder to take the thrice folded products therefrom, and means for slitting the product on the delivery cylinders.

9. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold on the second cylinder, the second cylinder coacting with the third cylinder to make the second fold on the third cylinder and the fourth cylinder coacting with the third cylinder to make the third fold on the third cylinder, and two rotary delivery cylinders coacting with the third cylinder to take the thrice folded products therefrom.

10. In a sheet folding machine, mechanism operative to make three parallel cross folds including four rotary folding cylinders, the first cylinder coacting with the second cylinder to make the first fold, the second cylinder coacting with the third cylinder to make the second fold and the fourth cylinder coacting with the third cylinder to make the third fold, two rotary delivery cylinders coacting with the third cylinder to take the thrice folded products therefrom, and means for slitting the product on the delivery cylinders.

11. In a sheet folding machine, two rotary delivery cylinders, each having a set of grippers, mechanism operative to make three parallel cross folds including two pairs of rotary folding cylinders, one cylinder of the first pair having a folding blade and the other cylinder having two sets of jaws to coact therewith and also two folding blades, one cylinder of the second pair having a folding blade and the other cylinder having a set of jaws to coact therewith and with their respective grippers on the delivery cylinders, and also two sets of jaws to coact with their respective folding blades on the second named cylinder of the first pair.

12. In a sheet folding machine two rotary delivery cylinders, each having a set of grippers, mechanism operative to make three

parallel cross folds including two pairs of rotary folding cylinders, one cylinder of the first pair having a folding blade and the other cylinder having two sets of jaws to coact therewith and also two folding blades, 5 one cylinder of the second pair having a folding blade and the other cylinder having a set of jaws to coact therewith with their respective grippers on the delivery cylinders, and also two sets of jaws to coact with 10 their respective folding blades on the second named cylinder of the first pair, and means for slitting the products on the delivery cylinders.

In testimony, that I claim the foregoing 15 as my invention, I have signed my name this eighth day of July, A. D. 1921.

HOWARD M. BARBER.